MODELS

20/40-GB DAT Drive, Internal

157769-B21 (Opal)

3X-SD20X-AA

3X-SD20X-LB (AlphaServers only, Top Gun Blue)

20/40-GB DAT Drive, External

157770-001 North America (Opal)

157770-B31 International

157770-291 Japan

20/40-GB DAT Drive, Hot Plug

215488-B21 (Carbon)

3R-A2780-AA

Feature List

- LVD standard Interface
- Internal, External and Hot Plug configurations
- 2.4 MB/s data transfer rate
- 20-GB native capacity

OVERVIEW

The 20/40-GB DAT tape drive now comes in three different configurations, internal, external and the newest Hot Plug. This devices offers 20GB native capacity on a Compaq DDS-4 cassette with a transfer rate of 2.3 MB/s.

Compaq 20/40-GB DAT Tape drive Customer benefits include:

- Backup rate 8.6 GB/hr native
- 20/40-GB DAT offers investment protection with backward compatibility with previously written DDS-1, DDS-2, and DDS-3 media.
- Reduced spares inventory with a 24 hour exchange
- Easy installation and service
- High availability data protection – increases server up-time

Product Family Models:

- 157769-B21/3X-SD20X-AA, 20/40-GB DAT, Internal opal option kit with accessories
- 3X-SD20X-LB, 20/40-GB DAT, Internal top gun blue option kit with accessories for AlphaServers
- 157770-001, 20/40-GB DAT, External option kit with accessories
- 215488-B21/3R-A2780-AA, 20/40-GB DAT, Hot Plug option kit with accessories

KEY FEATURES

- 20-GB native capacity, 40 GB with 2:1 compression
- 2.4 MB/s native data transfer speed
- Internal, external and hot plug configurations
- Standard industry interface, LVD
- Small form factor, half-height built out to 5 ¼ inches
- Hot plug configuration fits into a 1.6-inch hot plug bay or two 1-inch hot plug bays in Compaq Servers and *StorageWorks*™ Enclosures by Compaq
- Supported with VERITAS Backup Exec, Computer Associates and Dantz Retrospect software
- Innovative SCA direct connect tape carrier
- Easy removal of parts provides better serviceability. No tools are required! (Hot Plug and External configurations only)
- Qualified behind Windows NT 4.0, Windows 2000, Novell NetWare, Tru64 UNIX, OpenVMS, Linux, SCO Unix, and Sun Solaris

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PRODUCT HIGHLIGHTS

Disaster Recovery - DRTape

The 20/40-GB DAT tape drive has been improved with the added feature of DRTape. DRTape insures that in case of a system failure, you will be able to restore your system from a single tape.

What is Disaster Recovery: A 20/40-GB DAT Tape Drive that can:

- Under Disaster Recovery (DR) situations, ID itself as a boot device
- Hold enough information to bring the system up for a DR restore from tape
- Is completely self contained in that it needs no other software or CD's to restore the system.

Hot Plug

Able to mix tape drives and hard drives on the same SCSI Bus without slowing down the performance of the system.

Supported on Compaq's Smart Array 5300 controller and Integrated Smart Array controller and selected AlphaServers hot bus adapters.

Hot Plug components can be replaced without powering down the system. This feature significantly enhances system availability.

Reliability

Advancements in tape technology have produced a tape drive that requires less cleaning and provides improved backup/restore operation. Some of these new advancements include an automatic, rotating, head-cleaning sweeper that is used during the write or read recovery procedure to dislodge debris in the recording heads and drum. This DDS-4 drive has a MTBF rating of 250,000 hours at a 30% duty cycle.

Automated Head Cleaning

Reduces head-cleaning cycles by two times over DDS-3

Industry-Standard DDS-4

DDS-4 format has a drum rotation speed of 8503 rpm while the tape moves at 11.6 mm/s. Features of the format and implementation of it allow an increased linear bit density compared with DDS-3 drives, achieving a greater transfer rate and capacity.

Easy Installation and Serviceability

With Compaq's hot plug tape configuration, the server does not need to be taken off-line to install the tape drive. Simply plug the tape drive into a 1.6″ hot plug bay or add the top hat for a 2-1-inch bay configuration and install the backup software.

Manageability

Supported through Compaq Insight Manager, alerting the administrator when tape status changes or when rewrite/reread thresholds are exceeded.

This utility allows customers to monitor their tape drives for pre-failure analysis and allows customers to upgrade their tape drive firmware when necessary.

Mix and Match Capabilities

With Compaq's hot plug tape configuration, customers are now able to mix 1" hot plug hard drives and tape drives on the same SCSI bus even if they are using Compaq's Integrated Smart Array Controller or the Smart Array 5300 series controller. Customers will no longer need a separate controller for their tape configurations. Similar support is available on selected AlphaServer host bus adapters.

Compatibility and Integration Testing

Compaq's 20/40-GB DAT tape drives are fully supported and compatible with Compaq Servers and controllers. Compaq thoroughly tests products with leading software and operating systems, including VERITAS Backup Exec, CA ARCserve and Dantz Retrospect.

High Availability

With hot plug configurations, you never have to take down your system to replace a failed or non-responding tape device. This increases your uptime for customer accessibility to your systems.

Compression

Built-in hardware compression

PRODUCT HIGHLIGHTS *(continued)*

Software Supported

Veritas Backup Exec v8.0 for Windows NT/2000

Veritas Backup Exec v8.5 for NetWare

Computer Associates ARCserve v6.61 for Windows NT

Computer Associates ARCserve v6.6 for NetWare

Computer Associates ARCserve 2000 for Windows 2000

Dantz Retrospect Backup v5.6 (Server and Workgroup versions) for Windows NT/2000

CarePaqs (service & support)

Additional Warranty protection and/or Compaq Installation packages can be purchased.

Software Product Services

- Standalone telephone support
- Rights to a new license
- Media and documentation updates

Hardware Product Services

- Installation services
- On-site Maintenance (includes warranty support)
- Response time upgrades during the warranty period
- Post-warranty coverage
- RAID setup and performance consulting via statement of work

For additional hardware installation and maintenance information please refer to the URL's listed below:

http://www.compaq.com/services/carepaq/us/install/

http://www.compaq.com/services/carepaq/us/hardware/

Warranty Upgrade Options

- Response - Upgrade on-site response from next business day to same day 4-hours
- Coverage - Extend hours of coverage from 9 hours x 5 days to 24 hours x 7 days
- Duration - Select duration of coverage for a period of 1, 3, or 5 years

CarePAQ Information

- CarePAQ is defined as an upgrade to the product warranty attribute, available for a specific duration and hours of coverage.
- CarePAQ is not available for less than the products warranty duration.
- CarePAQ is available for sale anytime during the warranty period for most products, but the commencement date will be the same as the Warranty Start Date (delivery date to end user customer). Proof of purchase may be required.

CarePAQ services are prepaid.

For additional CarePAQ (hardware & software) information, as well as, orderable part numbers please refer to the URL listed below:

http://www.compaq.com/services/carepaq/index.html

SmartStart

The server configuration and software integration tool from Compaq

PRODUCT HIGHLIGHTS *(continued)*

CS Support

Compaq Services provides a three-year, limited warranty, fully supported by a worldwide network of resellers and service providers and toll-free 7 x 24 hardware technical phone support during the warranty period. In addition, available service offerings include a full range of CarePaq packaged hardware and software services:

- Installation and start up
- Extended coverage hours and enhanced response times
- System management and performance services
- Availability and recovery services

Warranty

3-0-0 (Three year parts)

COMPAQ 20/40-GB DAT DRIVE SPECIFICATIONS

Protocol Support	Ultra2 SCSI, LVD interface	
O/S Support	Windows NT v4.0, Windows 2000	
	Netware v4.12 & 5.0	
	OpenVMS (native)	
	Tru64 UNIX (native)	
	Linux for Intel / Alpha (native) *not supported with hot plug configuration	
	SCO Unix v5.x Open Server (native) * not supported with hot plug configuration	
	SCO UnixWare v7.1x (native) not supported with hot plug configuration	
	Sun Solaris v7.0, v8.0 (native) not supported with hot plug configuration	
Dimensions (HxWxD)	**Physical**	
	20/40-GB DAT Drive, Internal	1.6 x 5.9 x 5.9 in/4.06 x 14.98 x 14.98 cm
	20/40-GB DAT Drive, External	10 x 7.9 x 2.6 in/25.4 x 20.07 x 6.6 cm
	20/40-GB DAT Drive, Hot Plug	8.5 x 4.63 x 1.75 in/21.59 x 11.76 x 4.45 cm
	Shipping	
	20/40-GB DAT Drive, Internal	13.88 x 11.38 x 9.25 in / 35.25 x 28.90 x 23.49 cm
	20/40-GB DAT Drive, External	15.75 x 12.95 x 11.25 in / 40 x 32.83 x 28.57 cm
	20/40-GB DAT Drive, Hot Plug	14.13 x 10 x 11.13 in / 35.89 x 25.4 x 28.27 cm
Weight	**Out of box**	
	20/40-GB DAT Drive, Internal	1.4 lbs/0.63 kg
	20/40-GB DAT Drive, External	18.4 lbs/8.35 kg
	20/40-GB DAT Drive, Hot Plug	1.9 lbs/0.86 kg
	Shipping	
	20/40-GB DAT Drive, Internal	7.7 lbs/3.5 kg
	20/40-GB DAT Drive, External	25 lbs/11.34 kg
	20/40-GB DAT Drive, Hot Plug	7.75 lbs/3.52 kg
UPC Code	**20/40-GB DAT, Internal**	720591222666 / JAN code 4948382133151
	20/40-GB DAT, External	
	-001	720591222680
	-B31	720591222703 / JAN code 4948382133182
	-291	720591222697 / JAN code 4948382133175
	20/40-GB DAT, Hot Plug	720591546694 / JAN code 4948382179326

COMPAQ 20/40-GB DAT DRIVE SPECIFICATIONS *(continued)*

Cables Supported	Cables	Internal Options contain a 2-Device ribbon cable with switchable LVD/SE terminator External Options contain (1) 3ft Wide to VHDCI External Cable VHDCI to Wide 6 foot 295644-B21 VHDCI to Narrow 6 foot 295646-B21 VHDCI to VHDCI 6 foot 341174-B21
Drive LED Indicators	Busy	Flashes when the drive is processing a command
	Tape	Flashes when physical media is in motion
	Caution	Flashes when there is an error status on the drive
Buffer	2-MB non-parity buffer embedded within the tape drive	
Input Requirements	Range Line Voltage	AC 100 to 200/220 to 240V
	Line Frequency	20 MHz
	Typical Input Current	2.3A at 120 VAC
Interface	Ultra2 SCSI, LVD	
Tape Format	Recording Method	8 mm helical scan
	Recording Format	ANSI/ECMA-246
	Data Compression	ALDC Adaptive Lossless Data Compression
	Error Detection/Correction	Reed Solomon
Maximum Number of Drives	5 drives per SCSI bus	
	Maximum Transfer Rate	8.4 GB/hr
	Typical Transfer Rate	6 GB/hr
	Average load/unload swap	< 15 seconds
	Search speed	45 seconds to any point on a 150m cassette
Media	Compaq Branded DDS-4 (150m)	
Power Requirement	+5V±5%/+12V±10%	
Power Consumption	12 Watts (average internal)	
	21 Watts (average external)	
Tape Format	Recording Method	Helical Scan
	Recording Format	ECMA-288, DDS-4
	Data Compression	Lempel-Ziv (DCLZ)
	Error detection/correction	Reed Solomon
Relative Humidity (non-condensing)	Operating	20% to 80%
	Shipping	5% to 95%
Temperature Range	Operating	41° to 104° F/5° to 40° C
	Shipping	–22° to 140° F/–30° to 60° C

FAMILY COMPARISON

	20/40-GB DAT	**12/24-GB DAT**	**4/8-GB DAT**
Announce Date	Oct 1999	June 1998	April 1996
Capacity (native)	20 GB	12 GB	4 GB
SCSI Interface	Ultra2, LVD	Fast-Wide/ SE	Single ended
Buffer	2 MB non-parity	1 MB non-parity	1 MB non-parity
Firmware Upgradable	Yes w/TSMC	Yes w/TSMC	Yes w/TSMC
Maximum Drives per bus	5	5	5
MTBF	>250,000 @ 30%	>200,000 @ 20%	>200,000 @ 20%
Transfer Rate (native)	2.4 MB/s	1.2 MB/s	750 KB/s

SERVER AND TAPE COMPATIBILITY

ProLiant Servers	Internal	External	Hot Plug
DL360		X	
DL380	X	X	X
DL580		X	X
PL8500		X	X
ML 330	X	X	
ML350	X	X	X*
ML370	X	X	X
ML530	X	X	X
ML570	X	X	X
PL8000	X	X	X
CL380	X	X	X
CL1850	X	X	X
Deskpro AP250, 300	X	X	
Professional WS AP550, SP750	X	X	

NOTE: When upgrading a Non-Hot Plug Model to Hot Plug, the purchase of the Hot Plug Cage Upgrade Option Kit (161275-B21) is required.

Host Bus Adapters and Controllers for Intel Based Servers	
SCSI-3	272514-001 *not supported with hot plug
64-bit Dual Channel	348757-B21
Dual Channel Ultra III	129803-B21, -291 *not supported with hot plug
Dual Channel 64-bit Wide Ultra3	127693-001 *not supported with hot plug
Single Channel 64-bit Wide Ultra3	154457-B21, -291 *not supported with hot plug
Integrated Smart Array Controller	
Smart Array 5304/128	158939-B21, -291
Smart Array 5302/64	124995-B21, -291
Smart Array 5302/32	166207-B21, -291

ALPHASERVER AND TAPE COMPATIBILITY

AlphaServers	Internal	External	Hot Plug
Alpha Server 4100	X	X	
AlphaServer DS10	X	X	X
AlphaStation DS10	X	X	X
XP900	X	X	X
XP1000	X	X	X
PWS 500a/au	X	X	X
DS10L		X	X
AlphaServer DS20E	X	X	X*
Alphastation DS20E	X	X	X*
AlphaServer ES40	X	X	X*
Alphastation ES40	X	X	X*
GS60E			
GS80/160/320			

* **NOTE**: These platforms also have internal disk enclosures support of the hot plug option, in addition to support in external LVD enclosures.

Host Bus Adapters and Controllers Compatibility for AlphaServers	
32-bit Single Channel UltraWide HBA	KZPBA-CA *not supported with hot plug
32-bit Single Channel LVD LSI SYM 8952Uia HBA	SN-KZPCA-AA
32-bit Single Channel LVD SCSI LSI SYM 8952Uia HBA	3X-KZPCA-AA
32-bit Single Channel LSI SYM 8951Uia	30-56041-01
Comb SCSI/Ether Dual Channel	KZPCM-DA *not supported with hot plug
64-bit Dual ChannelUltra 3 LVD HBA	3X/-KZPEA-DB
Combo Ultra2 SCSI/2D Video/10-100 Ethernet	3X/-DEPVZ-AA

CONFIGURATION INFORMATION

STEP 1 – 20/40-GB DAT TAPE DRIVE – BASE CONFIGURATION

Select one:

Model Number	Part Number	Model Description:
20/40-GB DAT, Internal	157769-B21 3X-SD20X-LB 3X-SD20X-AA	Contains one 20/40-GB DAT tape drive, US English hard copy manual and translation CD, Warranty card, 1 DDS-2 data cassette, 1 DAT cleaning cassette, 2-interncal cables.
20/40-GB DAT, External	157770-001 157770-B31 157770-291	Contains one 20/40-GB DAT tape drive enclosed in an external housing, power cord, SCSI terminator, 1 DDS-4 data cassette, 1 DAT cleaning cassette, external 3' cable, warranty card, US English documentation with translations CD.
20/40-GB DAT, Hot Plug	215487-B21 3R-A2780-AA	Contains one 20/40-GB DAT tape drive enclosed in a hot plug carrier, 1 DAT data cassette, 1 DAT cleaning cassette, warranty card, US English documentation with translations CD.

RELATED OPTIONS

Compaq Branded DDS-4 data cassette 10 Pack	152842-001
Compaq Branded DAT cleaning cassette	242781-001